

# PATENT COOPERATION TREATY

WO 01/04577  
PCT/IB00/01027

PCT

## NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

From the INTERNATIONAL BUREAU

To:

SLINGSBY, Philip, Roy  
Page White & Farrer  
54 Doughty Street  
London WC1N 2LS  
ROYAUME-UNI

RECEIVED

25 JAN 2001

Ans'd .....

Date of mailing (day/month/year) 18 January 2001 (18.01.01)		
Applicant's or agent's file reference 102271/PRS		IMPORTANT NOTICE
International application No. PCT/IB00/01027	International filing date (day/month/year) 13 July 2000 (13.07.00)	Priority date (day/month/year) 13 July 1999 (13.07.99)
Applicant NOKIA NETWORKS OY et al		

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:

AG,AU,BZ,DZ,KP,KR,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:

AE,AL,AM,AP,AT,AZ,BA,BB,BG,BR,BY,CA,CH,CN,CR,CU,CZ,DE,DK,DM,EA,EE,EP,ES,FI,GB,GD,  
GE,GH,GM,HR,HU,ID,IL,IN,IS,JP,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MA,MD,MG,MK,MN,MW,MX,  
NO,NZ,OA,PL,PT,RO,RU,SD,SE,SG,SI,SK,SL,TJ,TM,TR,TT,TZ,UA,UG,UZ,VN,YU,ZA,ZW

The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on

18 January 2001 (18.01.01) under No. WO 01/04577

### REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

### REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer  J. Zahra
Facsimile No. (41-22) 740.14.35	Telephone No. (41-22) 338.83.38

## PATENT COOPERATION TREATY

10/030669

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

To:

SLINGSBY, Philip, Roy  
Page White & Farrer  
54 Doughty Street  
London WC1N 2LS  
ROYAUME-UNI

RECEIVED

MAY 31 2002

GROUP 3600

Date of mailing (day/month/year) 25 January 2002 (25.01.02)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 102271/PRS	
International application No. PCT/IB00/01027	International filing date (day/month/year) 13 July 2000 (13.07.00)

1. The following indications appeared on record concerning:		
<input checked="" type="checkbox"/> the applicant	<input type="checkbox"/> the inventor	<input type="checkbox"/> the agent
<input type="checkbox"/> the common representative		
Name and Address NOKIA NETWORKS OY Keilalahdentie 4 FIN-02150 Espoo Finland	State of Nationality FI	State of Residence FI
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:		
<input type="checkbox"/> the person	<input checked="" type="checkbox"/> the name	<input type="checkbox"/> the address
<input type="checkbox"/> the nationality		
<input type="checkbox"/> the residence		
Name and Address NOKIA CORPORATION Keilalahdentie 4 FIN-02150 Espoo Finland	State of Nationality FI	State of Residence FI
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
3. Further observations, if necessary:		
4. A copy of this notification has been sent to:		
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned	
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned	
<input type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:	

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Alexandre BOUVIER Telephone No.: (41-22) 338.83.38
---	---

## PATENT COOPERATION TREATY

7

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
US Department of Commerce  
United States Patent and Trademark  
Office, PCT  
2011 South Clark Place Room  
CP2/5C24  
Arlington, VA 22202  
ETATS-UNIS D'AMERIQUE  
in its capacity as elected Office

Date of mailing (day/month/year) 23 March 2001 (23.03.01)	
International application No. PCT/IB00/01027	Applicant's or agent's file reference 102271/PRS
International filing date (day/month/year) 13 July 2000 (13.07.00)	Priority date (day/month/year) 13 July 1999 (13.07.99)
Applicant RATSCHUNAS, Kalevi	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
09 February 2001 (09.02.01)

☐ in a notice effecting later election filed with the International Bureau on:  
\_\_\_\_\_

2. The election ☒ was  
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer S. Mafla Telephone No.: (41-22) 338.83.38
---	--

## PATENT COOPERATION TREATY

7

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

Date of mailing (day/month/year) 26 March 2001 (26.03.01)	
International application No. PCT/IB00/01027	Applicant's or agent's file reference 102271/PRS
International filing date (day/month/year) 13 July 2000 (13.07.00)	Priority date (day/month/year) 13 July 1999 (13.07.99)
Applicant RATSCHUNAS, Kalevi	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
 09 February 2001 (09.02.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was  
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer S. Mafla
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38



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Europäisches  
Patentamt

Zweigstelle  
in Den Haag

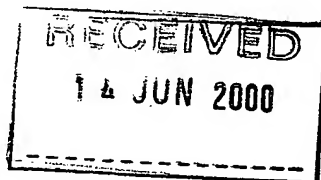
European  
Patent Office

Branch at  
The Hague

Office européen  
des brevets

Département à  
La Haye

PAGE WHITE & FARRER  
Attn. Mr. Philip R. Slingsby  
54 Doughty Street  
LONDON WC1N 2LS  
UNITED KINGDOM



Aktenzeichen/File-No./No. du Dossier

RS 104168 GB

Datum/Date

13.06.2000

Das Europäische Patentamt übermittelt hiermit den Standardrecherchenbericht zu dem unten bezeichneten Antrag; Kopien der im Recherchenbericht angeführten Schriften werden in der Anlage beigelegt.

The European Patent Office herewith transmits the Standard Search Report relating to the request indicated below; copies of the documents cited in the search report are enclosed.

L'Office Européen des Brevets à l'honneur de vous transmettre ci-joint le Rapport de Recherche concernant la demande désignée ci-dessous; des copies des documents cités sont jointes.

Zeichen und Datum des Antrages Applicant's reference and date Références et date de la demande	91628/PRS
Dokument, Gegenstand der Recherche Document subject of the search Objet de la recherche	GBA 9916408
Einreichungstag Filing date Date de dépôt	13/07/1999
Beanspruchte Priorität Priority claimed Priorité revendiquée	

OFFICE EUROPÉEN DES BREVETS  
Pour le Vice-Président,

R.C. VAN DAME



European Patent  
Office

# STANDARD SEARCH REPORT

File  
RS 104168

DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
X	US 5 790 074 A (RANGEDAHL LARS ET AL) 4 August 1998 (1998-08-04) * abstract * * column 1, line 51 - column 2, line 9 * * column 2, line 38 - column 3, line 2 * * column 5, line 51 - column 6, line 18 *	1-12
E	US 5 938 721 A (DUSSELL WILLIAM O ET AL) 17 August 1999 (1999-08-17) * abstract * * column 1, line 58 - column 2, line 11 * * column 3, line 1 - line 39 * * column 3, line 66 - column 4, line 21 * * column 7, line 42 - column 9, line 2 *	1-4,8-12
		TECHNICAL FIELDS SEARCHED (Int. CL. 7)
		G01C
The present search report has been drawn up for all claims		
Date of completion of the search 7 June 2000		Examiner Larcinese, C
CATEGORY OF CITED DOCUMENTS		
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document		

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>102271/PRS</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/IB00/01027</b>	International filing date ( <i>day/month/year</i> ) <b>13/07/2000</b>	Priority date ( <i>day/month/year</i> ) <b>13/07/1999</b>
International Patent Classification (IPC) or national classification and IPC <b>G01C21/20</b>		
Applicant <b>NOKIA NETWORKS OY et al.</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
 

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I    ☒ Basis of the report
- II   ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V    ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  <b>09/02/2001</b>	Date of completion of this report  <b>03.04.2001</b>
Name and mailing address of the international preliminary examining authority:  <div style="display: flex; align-items: center;"> <div>             European Patent Office              D-80298 Munich              Tel. +49 89 2399 - 0 Tx: 523656 epmu d              Fax: +49 89 2399 - 4465           </div> </div>	Authorized officer  <b>Dighaye, J-L</b>  Telephone No. +49 89 2399 2823



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IB00/01027

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):  
**Description, pages:**

1-10 as originally filed

### Claims, No.:

1-12 as originally filed

### Drawings, sheets:

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IB00/01027

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes: Claims 1-12
	No: Claims
Inventive step (IS)	Yes: Claims 1-12
	No: Claims
Industrial applicability (IA)	Yes: Claims 1-12
	No: Claims

2. Citations and explanations  
**see separate sheet**

## VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:  
**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

---

International application No. PCT/IB00/01027

**To Section V**

1. The present set of claims contains a single independent claim, namely claim 1 directed to a location-dependent personal organiser apparatus. This apparatus comprises in particular an alerting unit which, based on the stored place for an appointment and the automatically determined location of the apparatus, can be actuated at a such a period before the stored time of the appointment that the user of the apparatus can reach the location of the appointment in due time.
2. In the International Search Report (ISR), US-A-5 790 074 (= D1) is considered as being of particular relevance. The examiner does not follow this point of view since D1 pertains to a completely different technical field, namely the remote authorisation of electronic device operation (D1, col. 1, ll. 8-9). The device claimed in D1 comprises a GPS for determining its geographical location (D1, claim 1: col. 8, ll. 51-53), and a timer (l. 54). However, such means are used for authorisation purposes, there is no hint at including them in a personal organiser which would contain locations and times of appointments. Therefore claim 1 (and all the dependent claims) should be regarded as novel and inventive over D1.
3. US-A-5 938 721 (= D2) cited in the ISR discloses a position based personal digital assistant whose functions may present some analogies with the present apparatus. However, D2 was published on 17.08.99 i.e. later than the presently claimed priority date of 13.07.99. D2 is therefore not relevant to the present application.

**To Section VII**

The following irregularities are mentioned for the sake of completeness. The applicant should take them into consideration if the application is to be further prosecuted.

1. Claims should comprise reference numerals whenever necessary.
2. Claim 12 referring to the description and the drawing is superfluous and should be deleted.

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>102271/PRS</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/IB 00/ 01027</b>	International filing date (day/month/year) <b>13/07/2000</b>	(Earliest) Priority Date (day/month/year) <b>13/07/1999</b>
Applicant <b>NOKIA NETWORKS OY et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

**4. With regard to the title,**

the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

**5. With regard to the abstract,**

the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

**6. The figure of the drawings to be published with the abstract is Figure No.**

as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.

1

None of the figures.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 00/01027

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 G01C21/20

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 790 074 A (RANGEDAHL LARS ET AL) 4 August 1998 (1998-08-04) abstract column 1, line 51 -column 2, line 9 column 2, line 38 -column 3, line 2 column 5, line 51 -column 6, line 18 -----	1-12
E	US 5 938 721 A (DUSSELL WILLIAM O ET AL) 17 August 1999 (1999-08-17) abstract column 1, line 58 -column 2, line 11 column 3, line 1 - line 39 column 3, line 66 -column 4, line 21 column 7, line 42 -column 9, line 2 -----	1-4,8-12

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## ° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&amp;" document member of the same patent family

Date of the actual completion of the international search

14 September 2000

Date of mailing of the international search report

22/09/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Larcinese, C

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 00/01027

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5790074	A	04-08-1998	NONE	
US 5938721	A	17-08-1999	NONE	

The demand must be filed directly with the competent International Preliminary Examining Authority if two or more Authorities are competent, with the one chosen by the applicant. The name or two-letter code of that Authority may be indicated by the applicant on the line below:

IPEA/ EP

# PCT

## CHAPTER II

### DEMAND

under Article 31 of the Patent Cooperation Treaty:

The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty and hereby elects all eligible States (except where otherwise indicated).

For International Preliminary Examining Authority use only

Identification of IPEA		Date of receipt of DEMAND
<b>Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION</b>		Applicant's or agent's file reference 102271/PRS
International application No. PCT/IB00/01027	International filing date (day/month/year) 13 July 2000 (13.07.00)	(Earliest) Priority date (day/month/year) 13 July 1999 (13.07.99)
Title of invention PERSONAL ORGANISER EQUIPMENT		
<b>Box No. II APPLICANT(S)</b>		
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)  NOKIA NETWORKS OY Keilalahdentie 4 FIN-02150 Espoo Finland		Telephone No.:
		Facsimile No.:
		Teleprinter No.:
State (that is, country) of nationality: Finland (FI)		State (that is, country) of residence: Finland (FI)
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)  RATSCHUNAS; Kalevi JMT 3 A 122 FIN-02150 Espoo Finland		
State (that is, country) of nationality: Finland (FI)		State (that is, country) of residence: Finland (FI)
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)          		
State (that is, country) of nationality:		State (that is, country) of residence:
<input type="checkbox"/> Further applicants are indicated on a continuation sheet.		

**Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE**The following person is ☒ agent ☐ common representativeand ☒ has been appointed earlier and represents the applicant(s) also for international preliminary examination.☐ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.Name and address: *(Family name followed by given name; for a legal entity, full official designation.  
The address must include postal code and name of country.)*SLINGSBY; Philip Roy  
PAGE WHITE & FARRER  
54 Doughty Street  
London WC1N 2LS  
United Kingdom

Telephone No.:

020 7831-7929

Facsimile No.:

020 7831-8040

Teleprinter No.:

8955681

☐ **Address for correspondence:** Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.**Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION****Statement concerning amendments:\***

1. The applicant wishes the international preliminary examination to start on the basis of:

☒ the international application as originally filedthe description ☒ as originally filed☐ as amended under Article 34the claims ☒ as originally filed☐ as amended under Article 19 (together with any accompanying statement)☐ as amended under Article 34the drawings ☒ as originally filed☐ as amended under Article 342. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.3. ☐ The applicant wishes the start of the international preliminary examination to be postponed until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). *(This check-box may be marked only where the time limit under Article 19 has not yet expired.)*

\* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

**Language for the purposes of international preliminary examination:** English☒ which is the language in which the international application was filed.☐ which is the language of a translation furnished for the purposes of international search.☐ which is the language of publication of the international application.☐ which is the language of the translation (to be) furnished for the purposes of international preliminary examination.**Box No. V ELECTION OF STATES**The applicant hereby elects all eligible States *(that is, all States which have been designated and which are bound by Chapter II of the PCT)*

excluding the following States which the applicant wishes not to elect:

**Box No. VI CHECK LIST**

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:

- |  |   |          |
|--|---|----------|
| 1. translation of international application                              | : | sheets   |
| 2. amendments under Article 34   | : | sheets   |
| 3. copy (or, where required, translation) of amendments under Article 19 | : | sheets   |
| 4. copy (or, where required, translation) of statement under Article 19  | : | sheets   |
| 5. letter  | : | 1 sheets |
| 6. other ( <i>specify</i> )  | : | sheets   |

For International Preliminary Examining Authority use only

received not received

<input type="checkbox"/>	<input type="checkbox"/>
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The demand is also accompanied by the item(s) marked below:

- |  |   |
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| 1. <input checked="" type="checkbox"/> fee calculation sheet                             | 4. <input type="checkbox"/> statement explaining lack of signature                                  |
| 2. <input type="checkbox"/> separate signed power of attorney                            | 5. <input type="checkbox"/> nucleotide and or amino acid sequence listing in computer readable form |
| 3. <input type="checkbox"/> copy of general power of attorney, reference number, if any: | 6. <input type="checkbox"/> other ( <i>specify</i> ):   |

**Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE**

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).

SLINGSBY; Philip Roy - Authorised Representative

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1. Date of actual receipt of DEMAND:

2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):

3. ☐ The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply.

☐ The applicant has been informed accordingly.

4. ☐ The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.

5. ☐ Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.

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Demand received from IPEA on:



# PCT

## REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference  
(if desired) (12 characters maximum)

102271/PRS

Box No. I TITLE OF INVENTION

PERSONAL ORGANISER EQUIPMENT

Box No. II APPLICANT

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

NOKIA NETWORKS OY  
Keilalahdentie 4  
FIN-02150 Espoo  
Finland

☐ This person is also inventor.

Telephone No.

Facsimile No.

Teleprinter No.

State (that is, country) of nationality:  
Finland (FI)

State (that is, country) of residence:  
Finland (FI)

This person is applicant for the purposes of:

☐ all designated States

☒ all designated States except the United States of America

☐ the United States of America only

☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

RATSCHUNAS; Kalevi  
JMT 3 A 122  
FIN-02150 Espoo  
Finland

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:  
Finland (FI)

State (that is, country) of residence:  
Finland (FI)

This person is applicant for the purposes of:

☐ all designated States

☐ all designated States except the United States of America

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☐ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

☒ agent

☐ common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

SLINGSBY; Philip Roy  
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London WC1N 2LS  
United Kingdom

Telephone No.

020 7831 7929

Facsimile No.

020 7831 8040

Teleprinter No.

8955681

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

## Box No.V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes; at least one must be marked):

## Regional Patent

- ☒ AP ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
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National Patent (if other kind of protection or treatment desired, specify on dotted line):

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> AE United Arab Emirates                  | <input checked="" type="checkbox"/> LR Liberia                                   |
| <input checked="" type="checkbox"/> AL Albania                               | <input checked="" type="checkbox"/> LS Lesotho                                   |
| <input checked="" type="checkbox"/> AM Armenia                               | <input checked="" type="checkbox"/> LT Lithuania                                 |
| <input checked="" type="checkbox"/> AT Austria                               | <input checked="" type="checkbox"/> LU Luxembourg                                |
| <input checked="" type="checkbox"/> AU Australia                             | <input checked="" type="checkbox"/> LV Latvia                                    |
| <input checked="" type="checkbox"/> AZ Azerbaijan                            | <input checked="" type="checkbox"/> MA Morocco                                   |
| <input checked="" type="checkbox"/> BA Bosnia and Herzegovina                | <input checked="" type="checkbox"/> MD Republic of Moldova                       |
| <input checked="" type="checkbox"/> BB Barbados                              | <input checked="" type="checkbox"/> MG Madagascar                                |
| <input checked="" type="checkbox"/> BG Bulgaria                              | <input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia |
| <input checked="" type="checkbox"/> BR Brazil                                | <input checked="" type="checkbox"/> MN Mongolia                                  |
| <input checked="" type="checkbox"/> BY Belarus                               | <input checked="" type="checkbox"/> MW Malawi                                    |
| <input checked="" type="checkbox"/> CA Canada                                | <input checked="" type="checkbox"/> MX Mexico                                    |
| <input checked="" type="checkbox"/> CH and LI Switzerland and Liechtenstein  | <input checked="" type="checkbox"/> NO Norway                                    |
| <input checked="" type="checkbox"/> CN China                                 | <input checked="" type="checkbox"/> NZ New Zealand                               |
| <input checked="" type="checkbox"/> CR Costa Rica                            | <input checked="" type="checkbox"/> PL Poland                                    |
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| <input checked="" type="checkbox"/> GB United Kingdom                        | <input checked="" type="checkbox"/> SL Sierra Leone                              |
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| <input checked="" type="checkbox"/> GH Ghana                                 | <input checked="" type="checkbox"/> TR Turkey                                    |
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| <input checked="" type="checkbox"/> KR Republic of Korea                     |  |
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**Precautionary Designation Statement:** In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)

**Supplemental Box** If the Supplemental Box is not used, this sheet should not be included in the request.

1. If, in any of the Boxes, the space is insufficient to furnish all the information: in such case, write "Continuation of Box No. ..." [indicate the number of the Box] and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular:

- (i) if more than two persons are involved as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below;
- (ii) if, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant;
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- (vi) if, in Box No. VI, there are more than three earlier applications whose priority is claimed: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI;
- (vii) if, in Box No. VI, the earlier application is an ARIPO application: in such case, write "Continuation of Box No. VI", specify the number of the item corresponding to that earlier application and indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed.

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3. If the applicant claims, in respect of any designated Office, the benefits of provisions of the national law concerning non-prejudicial disclosures or exceptions to lack of novelty: in such case, write "Statement concerning non-prejudicial disclosures or exceptions to lack of novelty" and furnish that statement below.

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<b>Box No. VI PRIORITY CLAIM</b>		<input type="checkbox"/> Further priority claims are indicated in the Supplemental Box.		
Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application:* regional Office	international application: receiving Office
item (1) 13 July 1999 (13.07.99)	9916408.9	GB		
item (2)				
item (3)				
<input type="checkbox"/> The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s): _____				
<small>* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.</small>				
<b>Box No. VII INTERNATIONAL SEARCHING AUTHORITY</b>				
Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):		Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):		
ISA/ EP		Date (day/month/year) 13 June 2000	Number RS 104168	Country (or regional Office) GB
<b>Box No. VIII CHECK LIST; LANGUAGE OF FILING</b>				
This international application contains the following number of sheets:		This international application is accompanied by the item(s) marked below:		
request : 4		1. <input type="checkbox"/> fee calculation sheet		
description (excluding sequence listing part) : 10		2. <input type="checkbox"/> separate signed power of attorney		
claims : 2		3. <input checked="" type="checkbox"/> copy of general power of attorney; reference number, if any: GPA00/0066		
abstract : 1		4. <input type="checkbox"/> statement explaining lack of signature		
drawings : 1		5. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s):		
sequence listing part of description : _____		6. <input type="checkbox"/> translation of international application into (language):		
Total number of sheets : 18		7. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material		
		8. <input type="checkbox"/> nucleotide and/or amino acid sequence listing in computer readable form		
		9. <input type="checkbox"/> other (specify):		
Figure of the drawings which should accompany the abstract: 1		Language of filing of the international application: English		
<b>Box No. IX SIGNATURE OF APPLICANT OR AGENT</b>				
<small>Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).</small>				
SLINGSBY; Philip Roy - Authorised Representative				
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3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:		<input type="checkbox"/> received:		
4. Date of timely receipt of the required corrections under PCT Article 11(2):		<input type="checkbox"/> not received:		
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(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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International Bureau



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9916408.9 13 July 1999 (13.07.1999) **GB**

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(72) Inventor; and

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

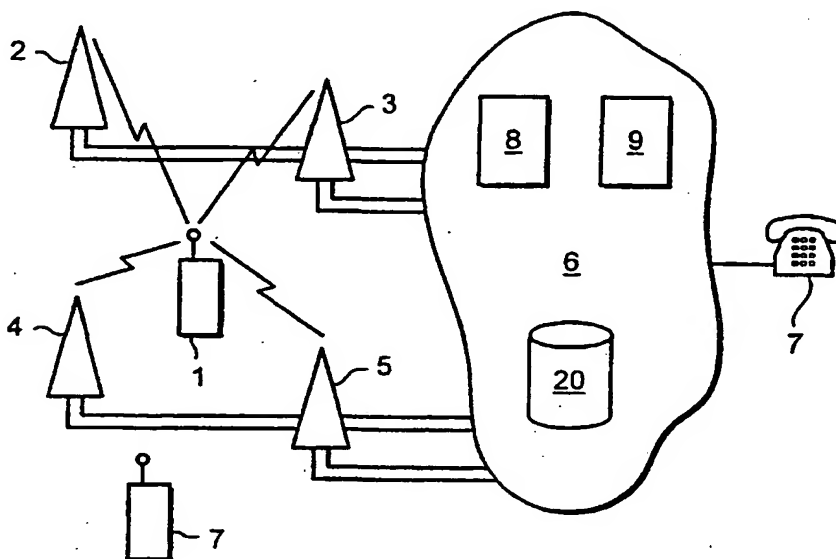
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— With international search report.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **PERSONAL ORGANISER EQUIPMENT**



(57) Abstract: Location-dependant personal organiser apparatus for operation with a memory for storing a plurality of appointment entries, each appointment entry including data specifying a time and a place; the personal organiser comprising: a locating unit capable of determining the location of the personal organiser; a clock capable of determining the present time; an alerting unit for generating an alert to a user; and an alert processor coupled to the memory, the locating unit, the clock and the alerting unit and capable of actuating the alerting unit at a period before the stored time for an appointment entry that is dependant on the stored place for that appointment entry and the determined location of the personal organiser.

WO 01/04577 A1

## PERSONAL ORGANISER EQUIPMENT

This invention relates to personal organiser equipment, and especially location-dependant personal organiser equipment.

It is becoming increasingly popular to use electronic personal organiser equipment for managing appointments. In addition to dedicated personal organisers, which are usually in a palmtop format, personal organisation functions have been provided in mobile phones, wristwatches and software for personal computers. Personal organisers usually include a diary/calendar whereby a user may enter the time and date of an appointment together with details of the appointment such as its location and purpose. Many personal organisers are able to remind a user at the time of an appointment, or at a set time beforehand. The reminder could take the form of an audible alarm or another alerting format such as flashing of an indicator light or vibration.

It can be difficult for a user to obtain appropriate reminders from such a conventional diary/calendar because the time at which a reminder should ideally be given is dependant on the amount of time the user needs to reach the appointment. One approach is for the organiser to remind a user of an appointment at the very time of the appointment. However, if the user is not already at the location of the appointment when the reminder is issued then the reminder is likely to have come too late to allow the user to reach the appointment on time; alternatively, if the user has already got to the appointment by the time the reminder issues then his appointment may be unwantedly interrupted by the reminder. Another approach is to have the personal organiser equipment generate a reminder a set time in advance of the appointment. However, this requires the user to configure the equipment to generate such reminders, and since they are issued at a fixed timer before the appointment the advance reminders are unlikely to be at an appropriate time to cause the user to travel efficiently to his appointment. In addition, the effectiveness

of the personal organiser, and its popularity with a user, is diminished by it issuing inappropriate alerts.

Separately from personal organiser technology, apparatus exists for determining a user's location. Systems for determining location include satellite location systems such as GPS (global positioning system) and cellular radio location systems, for example making use of measurement of timing differences between nearby basestations. In the GPS system a receiver determines its location by means of signals received from earth-orbiting satellites. It is also possible for a mobile station in a cellular telephone network or the like to determine its location (or for the network to determine its location) by means of timing delays of signals to or from respective base-stations or by other means.

According to the present invention there is provided location-dependant personal organiser apparatus for operation with a memory for storing a plurality of appointment entries, each appointment entry including data specifying a time and a place; the personal organiser comprising: a locating unit capable of determining the location of the personal organiser; a clock capable of determining the present time; an alerting unit for generating an alert to a user; and an alert processor coupled to the memory, the locating unit, the clock and the alerting unit and capable of actuating the alerting unit at a period before the stored time for an appointment entry that is dependant on the stored place for that appointment entry and the determined location of the personal organiser.

The personal organiser itself preferably comprises the memory and/or the locating unit and/or the clock and/or the alert processor. The alert processor may comprise one or more integrated circuits. The alert processor may comprise a processing unit that is capable of cellular telephony processing.

The locating unit is suitably capable of periodically (and most preferably regularly) determining the location of the personal organiser and making that available to the alert processor. The alert processor or other processing means of the organiser may

suitably be capable of initiating determination by the locating unit of the location of the personal organiser.

The memory is suitably capable of storing information defining the location of the place specified for the appointment entry. The memory is suitably capable of storing information defining journey speed or speeds for use by the alert processor. The alert processor is suitably capable of estimating the journey time needed to travel from the location of the personal organiser to the location of the place of the appointment entry and actuating the alerting unit at a period before the stored time for an appointment entry that is dependant on that journey time. The alert processor is capable of actuating the alerting unit when it determines that the present time is at or is after the time determined by subtracting the estimated journey time from the stored time of the appointment entry. The alert processor is capable of actuating the alerting unit when it determines that the present time is at or is after the time determined by subtracting the estimated journey time and an additional time period from the stored time of the appointment entry.

The locating unit is capable of determining the location of the personal organiser by means of a cellular telephone network and/or satellite signals (e.g. from the Global Positioning System) and/or by other means (such as receiving radio signals from local beacons or by integration from gyroscopic movement sensors).

The personal organiser is preferably capable of acting as a cellular telephone for making and/or receiving telephone calls and/or other cellular telephone functions.

The alert may be an audible alert, provided for example by a buzzer or speaker, a vibrational alert, provided for example by a vibration unit, or another form of alert (e.g. a visible flashing signal). The alert could take the form of an audible or non-audible alarm, for example a beep, tone or tune, flashing of an indicator light, displaying of a message or vibration. The alert could be provided by means of a message sent from a telecommunications network, for example a text message such as a short message service (SMS) message.



Instead of being located at the user's personal organiser equipment, some or all of the memory could be located elsewhere, for example on the network side of a telecommunications system. The division of memory sites could be chosen to optimise communication between the network and the terminal. The memory could be a central memory serving the personal organisers of several people. Thus the memory could store a plurality of appointment entries for the plurality of users. The memory could be located on the network side of a telecommunications system, for example a cellular and/or radio telephone system. The network may be provided with means for permitting each of the users to access his entries in the memory and/or to inhibit his access to other users' entries. A user may access the entries by an internet protocol such as hypertext transfer protocol (HTTP).

The present invention will now be described by way of example, with reference to the accompanying drawings, in which:

figure 1 is a schematic drawing of part of a cellular telephone system; and

figure 2 shows schematically the structure of a mobile phone in the system of figure 1.

Figure 1 shows a cellular telephone system in which a mobile phone 1 can communicate by radio with basestations 2-5 and from there via a communications network 6 with users of other terminals 7.

In many cellular telephone systems the basestations transmit periodic signals under the control of a unit functioning as a base station controller (BSC) 8. The network can be provided with a locating unit or location centre 9. If there is a need to determine the mobile phone's location the locating unit can transmit a signal via one of the base stations 2-5 to cause the mobile phone to measure the timing differences in the periodic signals it can receive from nearby basestations. The mobile station transmits the measured timing differences to the locating unit 9. The locating unit 9 is aware of the locations of the basestations and can therefore triangulate the mobile phone's position by means of the timing differences. The calculated position can be

transmitted back the mobile phone 1. The precision given by the locating procedure depends on a number of factors, including the number of basestations that the mobile phone can receive. However, an precision of within a few tens of meters is generally feasible.

Figure 2 shows the architecture of the mobile station 1. The phone comprises an antenna 10 connected to a radio transceiver section 11 which in transmission receives baseband signals and generates therefrom radio frequency signals for transmission, and in reception converts received radio frequency signals to baseband. The transceiver section is connected to a processor 12 which converts between the baseband signals and the audio signals received by microphone 13 and which drive loudspeaker 14. The processor 12 also receives signals from keypad 15 and drives display 16. The processor 12 is connected to a memory 17 which holds the instructions for operation of the processor and can be used by the processor to store information entered by a user, for example telephone numbers. The processor 12 includes a clock that is capable of telling the current time and date. The processor may be provided by one or more integrated circuits.

The mobile phone is set to determine its location by the procedure described above periodically. The phone suitably determines its location every 5 minutes, but other frequencies would be acceptable. To determine its location the control unit of the mobile phone transmits a message over the air to the locating unit 9 to initiate the locating process as described above. When the locating unit has determined the mobile phone's location it returns details of the location to the control unit of the mobile phone over the air. The location could be specified by grid reference coordinates (for example using a national grid system), or by longitude and latitude, and optionally by additional altitude information.

The mobile phone 1 has a diary/calendar function. The following table illustrates some possible entries in the diary.

Time	Date	Place	Details
09:00	22 April	Work	
10:00	22 April	Meeting room "Lobster"	Product meeting
16:30	22 April	Day care centre	Collect children
17:00	22 April	Home	
09:00	23 April	Work	
12:00	23 April	Restaurant "Kapelli"	Lunch with N. O. Kia
16:30	23 April	Day care centre	Collect children
17:00	23 April	Home	

A user does not have to enter all of a time, date, place and details for an entry, but the unit can make additional use of information in the time, date and place fields if they are entered.

The mobile phone is capable of enhancing operation of the diary by using the location information it has gathered. The mobile phone can use the location information to improve its reminders to a user based on the entries in the diary.

The mobile phone is capable of developing in the memory 17 a database containing entries which each comprise the name of a place and information defining the place's location. The name can be stored in the form used for the "place" field of the diary or in another way. The location information can be stored in the form received from the network (e.g. as a national grid reference) or in another way. The data for the database can be gathered in several ways.

1. The mobile phone can receive the data, for example from an external connector 17 (figure 2) or over the air, as, for example, a file from the internet, and then store the data in memory 17 to form or to supplement the database.
2. The mobile phone can derive the data during use.
  - a. A user can, by means of the keypad 15, cause the phone to determine its location and make an entry for that location in the database. The user then

uses the keypad 15 to enter a place name corresponding to the location information.

- b. When the user arrives at the place whose name is stored in the diary for a current appointment he can, by means of the keypad 15, cause the mobile phone to determine the place's location and store that in the database together with the place name as stored in the diary. Thus, on arriving for an appointment at a place he has not visited before the user can cause the location of that place to be stored in the database in a convenient way.
- c. The phone can be set to assume that the user has met the appointments stored in the diary unless the user indicates otherwise. Then at or shortly after the time of an appointment as stored in the diary the phone can automatically determine its location and store that information as an entry in the database together with the place name as entered in the diary.

If the phone is capable of storing location data locally and deriving location data over a network then it is preferred that the phone initially attempts to derive location information from the locally stored data and only attempts to derive location data over the network if the locally stored data is inadequate.

The following table illustrates some possible entries in the place database:

Place	Location
Home	123214, 645323, 200
Work	123192, 645310, 250
Day care centre	123201, 645610, 30

These locations are in the form: [x-grid-reference, y-grid-reference, altitude].

Some ways in which the operation of the diary is enhanced will now be described.

When a user makes a journey from one location to another (for instance from home to work on the morning of 23 April in the example diary set out above) the phone can, knowing the locations of "Home" and "Work" from the database, tell when the user has left home and arrived at work, and therefore calculate the time taken by the user to travel from home to work. The phone can store this journey time in a journey time

database, together with the start and end place names of the journey ("Home" and "Work"). The stored journey time could be modified after subsequent journeys between the same places, for instance to store the mean or maximum journey time for the route. A user could also be able to enter directly the journey time for a route. Since the phone makes regular checks on its location it is aware of when it is at or within a set radius of one of the places whose locations are stored in the place database. If it knows the current time, knows that the user has an appointment is at another location ( $loc_1$ ) at a time in the future ( $t_{app}$ ), and knows a journey time ( $t_{2-1}$ ) from the current location ( $loc_2$ ) to that other location the unit can alert the user to the appointment at a suitable time ( $t_{alert}$ ). That time is preferably calculated by:

$$t_{alert} = t_{app} - t_{2-1} \quad (1)$$

or:

$$t_{alert} = t_{app} - t_{2-1} - t_{advance} \quad (2)$$

where  $t_{advance}$  is a set period in advance of the time calculated by equation 1 at which the user wishes, for safety, to be alerted. This scheme allows the phone to give the user an alarm at a sensible time before his appointment.

The journey time could be calculated by determining the distance between the start and end places of the journey and dividing that by a speed, which could be fixed or variable depending on the distance. In particular a greater speed could be assumed for journeys between locations that are further apart. The user could enter one or more speeds to be used for this purpose.

If the time of an appointment is reached and the phone detects that it is already at the location of the place of the appointment (or within a set radius thereof) then it can omit to alert the user to the appointment, or use a modified form of alerting, for example a silent alert. This avoids interrupting the user's appointment with an alarm.

When a user makes an entry in the diary he does not have to enter a place name. However, doing so allows the phone to enhance the operation of the diary with the features described above. In entering the name of a place the user can enter the name directly or choose from a list of names in the place database. It is preferred

that a hierarchical arrangement is used for the entries in the place database. This allows the location information stored for a smaller place that is within a larger place for which no location information is stored to substitute for the location information for that larger place. This is illustrated by the following example of a hierarchical structure that could be used:

Hierarchy level	Place	Location	Radius (km)
1	Finland	None stored	500
2	Helsinki	None stored	20
3	Work	123192, 645310, 250	0.1
4	Meeting room "Lobster"	123192, 645308, -210	0.01
4	My Office	None stored	0.01
3	Home	123192, 645310, 250	0.1
3	Day care centre	123201, 645610, 30	0.1
1	United Kingdom	None stored	500
2	London	None stored	20

Here, a user can use the known location of "Work" to substitute for the unknown location of "Helsinki".

Each place may have a radius stored for it in the database. The radius information is suitably used as described above so that the unit infers itself to be at a place if it is within the radius set for that place of the location of that place or within that radius of a place lower in the hierarchy. The radius could be entered by a user or could be linked to the level of hierarchy (which could be set by a user), as in the above example.

Instead of being stored at the phone the diary information could be stored in a storage unit 20 (figure 1) in the telephone network. Entries made by the user could be transmitted over the air to the storage unit 20 and retrieved over the air by a user when needed. This may be especially efficient when the phone's location is determined by a network-side location centre. The phone could provide a user interface to a diary application provided at the network – for example by means of a

hypertext transfer protocol (HTTP) or other web browsing connection. The user would therefore be provided with a web-based diary. The diary software could access the location information of the terminal and also trigger it to either send its location directly to the network-side diary application (e.g. using GPS positioning) or request it to locate itself and send the location information. If a network-side location centre has the capability to send an event notification to the network-side diary application then it could obtain the location information directly from the location centre without the need for any such information transfer from the terminal.

The diary functions described above could be implemented in other units than mobile phones or terminals, for example units that are principally personal organiser units or that have other functions. The unit could be capable of communicating with the telephone network for location measurement and communication functions but may not be capable of making conventional telephone calls. The unit could be incapable of communicating with the telephone network and could determine its position in another way, for example by means of the GPS system. In that case the unit could be in the form of a personal organiser including a GPS receiver.

The enhanced diary function as described herein is advantageous for people who lead varied or regular lifestyles. People who lead varied lifestyles will be able to build up a large database of location/distance information. People who lead regular lifestyles may find that the alerting times determined by the unit may follow more accurately the pattern of the user's activities.

The present invention may include any feature or combination of features disclosed herein either implicitly or explicitly or any generalisation thereof irrespective of whether it relates to the presently claimed invention. In view of the foregoing description it will be evident to a person skilled in the art that various modifications may be made within the scope of the invention.

**CLAIMS**

1. Location-dependant personal organiser apparatus for operation with a memory for storing a plurality of appointment entries, each appointment entry including data specifying a time and a place; the personal organiser comprising:
  - a locating unit capable of determining the location of the personal organiser;
  - a clock capable of determining the present time;
  - an alerting unit for generating an alert to a user; and
  - an alert processor coupled to the memory, the locating unit, the clock and the alerting unit and capable of actuating the alerting unit at a period before the stored time for an appointment entry that is dependant on the stored place for that appointment entry and the determined location of the personal organiser.
2. Location-dependant personal organiser apparatus as claimed in claim 1, wherein the personal organiser comprises at least part of the memory.
3. Location-dependant personal organiser apparatus as claimed in claim 1 or 2, wherein the locating unit is capable of periodically determining the location of the personal organiser and making that available to the alert processor.
4. Location-dependant personal organiser apparatus as claimed in any of claims 1 to 3, wherein the memory is capable of storing information defining the location of the place specified for the appointment entry.
5. Location-dependant personal organiser apparatus as claimed in any preceding claim, wherein the alert processor is capable of estimating the journey time needed to travel from the location of the personal organiser to the location of the place of the appointment entry and actuating the alerting unit at a period before the stored time for an appointment entry that is dependant on that journey time.
6. Location-dependant personal organiser apparatus as claimed in claim 5, wherein the alert processor is capable of actuating the alerting unit when it determines that the



present time is after the time determined by subtracting the estimated journey time from the stored time of the appointment entry.

7. Location-dependant personal organiser apparatus as claimed in claim 5, wherein the alert processor is capable of actuating the alerting unit when it determines that the present time is after the time determined by subtracting the estimated journey time and an additional time period from the stored time of the appointment entry.
8. Location-dependant personal organiser apparatus as claimed in any preceding claim, wherein the locating unit is capable of determining the location of the personal organiser by means of a cellular telephone network.
9. Location-dependant personal organiser apparatus as claimed in any preceding claim, wherein the personal organiser is capable of acting as a cellular telephone for making and/or receiving telephone calls.
10. Location-dependant personal organiser apparatus as claimed in any preceding claim, wherein the alert is an audible alert.
11. Location-dependant personal organiser apparatus as claimed in any of claims 1 to 9, wherein the alert is a silent alert.
12. Location-dependant personal organiser apparatus substantially as herein described with reference to the accompanying drawing.

